

SOUTHERN PINE BEETLE POSTSUPPRESSION EVALUATION
FOR THE TOMBIGBEE AND BIENVILLE NATIONAL FORESTS IN MISSISSIPPI

TOMBIGBEE NATIONAL FOREST

Introduction

A project to control southern pine beetle, Dendroctonus frontalis Zimmerman, on the Tombigbee National Forest was initiated for FY 79. An October 1979 biological evaluation predicted FY 79 losses 1.5 times greater than occurred in FY 1978.

Targets

Targets designated were 754 thousand board feet (MBF) of timber salvaged and 4,923 MBF of timber to be protected (Smith 1978a). Also planned was the implementation of an integrated pest management approach to southern pine beetle (SPB) suppression. This was to include priority setting in the aerial and ground check phases, as well as application of alternative treatments when salvage operations would not remove a SPB spot within 3 weeks of discovery.

Results and Discussion

SPB Control Targets and Effectiveness

SPB project control salvage exceeded targets by 4.5 times. A total of 3,395 MBF was salvaged (754 MBF targeted for salvage). Volume of timber protected exceeded targets by 2.4 times. A total of 11,688 MBF was protected (4,923 MBF targeted to be protected).^{1/} No cut-and-leave was conducted by the Tombigbee National Forest. A total of 277 stems were chemically treated. A total of 12 flights were flown. Flights during the summer months were at 3-week intervals. Therefore, aerial surveillance in the form of presuppression flights has been adequate.

A total of 145 different SPB spots were treated, of which 21 different spots had breakouts. There was a total of 29 breakouts for these 21 spots. This large number of breakouts was due to several factors. One factor was the wet summer. Operators would begin to log the spots, roads became impassable, and the beetles crossed the buffer before loggers finished the spot. Breakouts have also resulted because some operators were cutting all the sawtimber in a spot first and then went back to cut the pulp. This allowed beetles to emerge and start the spot again. District personnel have been fairly successful in getting logging operators to stop this practice. A related factor involves some operators who have not been utilizing the entire tree. In large spots, beetles may have emerged from large tops left on the ground and caused breakouts. Due to poor markets in the area, it is going to be very difficult to completely solve this problem.

^{1/} Information on MBF salvaged and MBF protected was obtained from the SPB information system.

It is interesting to look at spot breakouts from another standpoint. The integrated pest management approach utilized a ranking system developed by Billings and Pase (1979) to assign treatment priorities when the spots were first ground checked (fig. 1). Results from application of this system indicate which SPB spots have the greatest potential of expanding the fastest and killing the most trees. Stand conditions most favorable to beetle development are assigned the highest treatment priority. Eight of the spots with breakouts had been rated with this system. There was a total of 10 breakouts from these eight spots. The treatment priority rank and number of breakouts for each rank were as follows: 8--one breakout, 9--two breakouts, 10--seven breakouts. It should be noted that all of the breakouts were in the high treatment priority category when ranked by this system. Seventy percent of these had a rank of 10, the highest rank possible. Although this sample is only one-third of the total breakouts that occurred, the breakouts consistently occurred in the category of high treatment priority.

It is advisable for the National Forest to recheck SPB spots with high rankings just prior to salvage operations and immediately after salvage is completed. If SPB-infested trees are found outside the buffer strip prior to salvage, a new buffer strip should be established. If SPB-infested trees are found outside the buffer strip after salvage operations, Forest Insect and Disease Management should be consulted. It may be necessary to enlarge buffer strips in SPB spots with high rankings.

At this time, markets are not very good for the Tombigbee National Forest. As of February 1980, Georgia Pacific Corp and International Paper Company have stopped buying any SPB-damaged timber. If SPB losses reach the levels predicted for FY 1980 (Stein 1979a), this could have a serious impact on control efforts.

Integrated Pest Management Approach

The integrated pest management (IPM) approach included special emphasis in setting control priorities and establishing alternative treatments when salvage operations could not remove SPB spots within 3 weeks of discovery. Some problems encountered in implementing the IPM approach follow.

The ranking system was tested in the IPM approach and appears to be workable. However, some districts do not conduct a preliminary ground check. They locate a spot and mark it at the same time. This procedure works well only if accurate spot size estimates are made in the aerial presuppression survey and if the largest spots are marked first. Also, timber operators should never be tied up salvaging inactive spots if any high or medium priority active spots are available.

		Rank
No. of active trees	> 50	4
	21 - 50	2
	11 - 20	1
	1 - 10	0
Pine basal area/acre f^2 at active head		
	> 120	2
	80 - 120	1
	< 80	0
Fresh attacks	Present	3
	Absent	0
Stand class	Sawtimber	1
	Pulp	0

TREATMENT PRIORITY CATEGORY

High -	7 - 10
Medium -	4 - 6
Low	0 - 3

Figure 1.--Assignment of ranks to southern pine beetle spots to determine treatment priority categories (based on Billings and Pase 1979).

Another area of concern in the system is the treatment of unsalvageable or excess high priority spots. During large outbreaks, spots generally grow quickly or large numbers of trees are infested before spots are discovered. Cut-and-leave and chemical treatments can only be used when < 40 trees are infested. Therefore, it appears that there will be instances when there are relatively few spots that can be treated with either treatment. This was the reason cut-and-leave and chemical treatments were never applied in this project. This project was conducted when SPB was in outbreak status. It appears the optimum time for use of the IPM approach would be before SPB reaches outbreak status. At this time, there should be unsalvageable or excess SPB spots which meet the criteria for cut-and-leave or chemical control treatments.

It is felt the system has a great deal of merit and it is being implemented on all districts with SPB projects this year. Forest Insect and Disease Management (FI&DM) needs to document and help districts resolve problems encountered when applying the IPM approach.

As SPB stand hazard rating systems are developed, FI&DM needs to incorporate them into the IPM approach. The aspect of prevention will then be added to SPB control efforts. Hazard rating methods should also be combined with the existing method for determining treatment priorities. The combination of the two methods should result in a treatment priority system superior to either one used alone.

BIENVILLE NATIONAL FOREST

Introduction

A project to control southern pine beetle, Dendroctonus frontalis Zimmerman, on the Bienville National Forest was initiated for FY 79. An October 1979 biological evaluation predicted FY 79 losses would be as great as those experienced in FY 78.

Targets

Targets designated for the Bienville Ranger District were 2,222 thousand board feet (MBF) of timber salvaged and 6,741 MBF of timber to be protected (Smith 1978b).

Targets designated for the Strong River Ranger District were 877.59 MBF of timber salvaged and 3,300 MBF of timber protected (Smith 1978b).

Results and Discussion

The Bienville Ranger District salvaged 1,718 MBF (2,222 targeted). Weather this summer affected logging operations on the Bienville Ranger District. Rains until September 1, 1979, made it difficult to get into SPB spots greatly hindering salvage operations. This fall, salvage sale administration was also changed and this expedited salvage operations. From October 1 - December 15, 1979, the Bienville Ranger District salvaged 3,075 MBF. The combination of good weather and the change in selling salvage timber appears to be allowing the Bienville Ranger District to make good progress in salvaging SPB-killed timber.

No information is available on number of breakouts or volume protected since this district was not on the southern pine beetle information system (SPBIS). They received training in October 1979 and will be reporting on SPBIS for the FY 80 project.

The Strong River Ranger District salvaged 1,198 MBF (878 MBF targeted for salvage). Volume of timber protected was 8,847 MBF (3,300 MBF targeted).^{2/}

A total of 117 different SPB spots were treated. There were no breakouts reported. At this time, markets are good on both districts. However, if SPB losses reach the levels predicted for summer 1980 (Stein 1979b), there could be some impact on the markets.

^{2/} Information on MBF salvaged and MBF protected was obtained from the SPB information system.

Summary

Volume salvage targets were exceeded on the Tombigbee National Forest and Strong River Ranger District. The Bienville Ranger District had trouble meeting estimated targets due to weather conditions which affected salvage operations. However, with improvement in the weather conditions, salvage removal of SPB-infested timber is proceeding very well.

Aerial detection in the form of presuppression flights has been adequate for all districts.

The Tombigbee has had some trouble with breakouts. Efforts are continuing to resolve this problem.

Markets for SPB-infested timber on the Tombigbee National Forest are very poor. This may affect their FY 1980 SPB project.

The Bienville Ranger District has received training and will be reporting FY 80 SPB control efforts on the southern pine beetle information system (SPBIS).

An integrated pest management (IPM) approach has been tried on the Tombigbee National Forest. Forest Insect and Disease Management (FI&DM) personnel will be implementing this on other districts with SPB control projects. FI&DM personnel need to work closely with National Forest district personnel and resolve problems encountered in implementing this approach.

FI&DM will work to incorporate hazard ratings into the IPM approach to the management of SPB. This will add the dimension of prevention within the IPM approach and will further refine the method for determining treatment priorities.

FI&DM personnel will strive to develop a more systematic method for postsuppression evaluation which can be included in future project control plans.

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